

# CloudCampus 3.0

## The Campus Networks for Cloud Era



# Network infrastructure are fundamental to enterprise digital transformation



## Mondragon University

Fully-wireless intelligent campus for 4600+ students and teachers

**40%↑**

Shared teaching resources, increasing efficiency



## SONGMICS

Fully-wireless intelligent warehouse

**48%↑**

All things connected, improving production efficiency



## Dubai International Finance Centre (DIFC)

Fully-wireless intelligent workspaces for 2400 companies

**Conveniently doing business**

One-click interconnection, facilitating business



## China Taiping Insurance

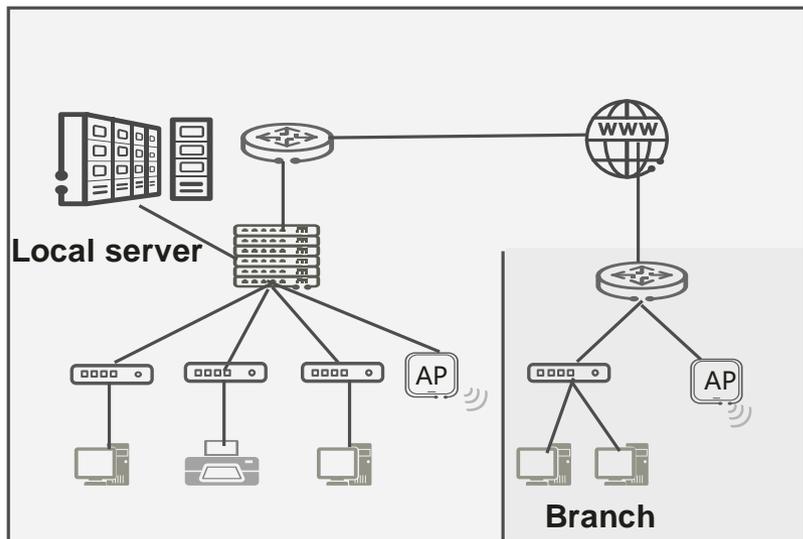
On-demand interconnection for 700+ intelligent branches

**40%↓**

SD-WAN for interconnection, reducing network costs

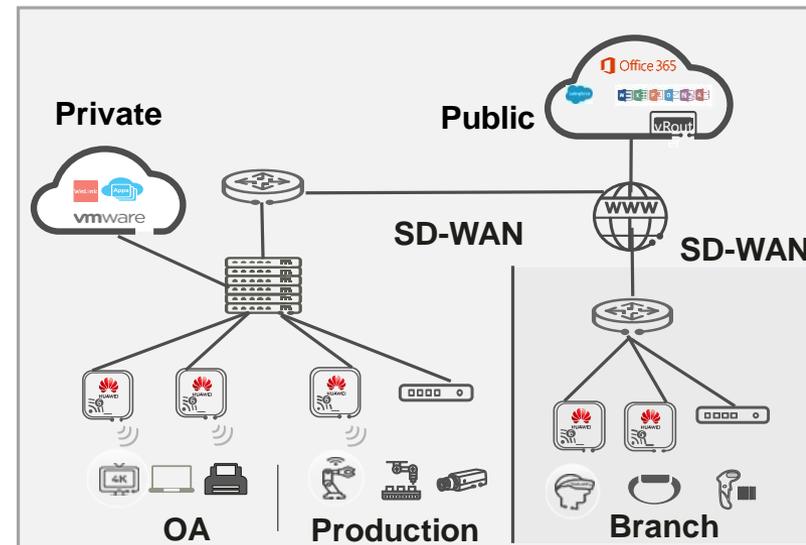
# Campus Networks Are Moving From the PC Era into Cloud Era

## PC Era



- On-premises enterprise applications
- Network for OA only
- Wireless as a supplement

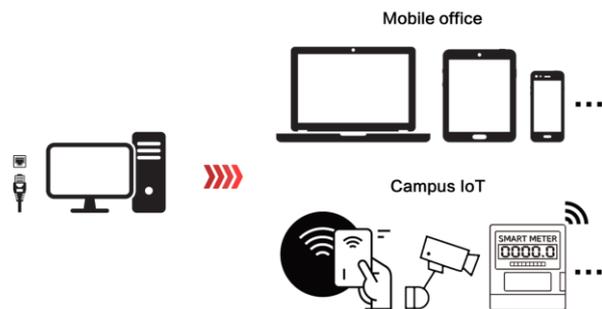
## Cloud Era



- SaaS enterprise applications
- Network is mainly for OA, production and operation
- Wired as a supplement

# Digital Transformation: Terminals Go Wireless, Networks Become Global, IT Moves to Cloud

**100X**  
Wireless terminal connections



Terminal

**One network**  
Global service interworking



Network

**80%**  
Applications deployed on cloud

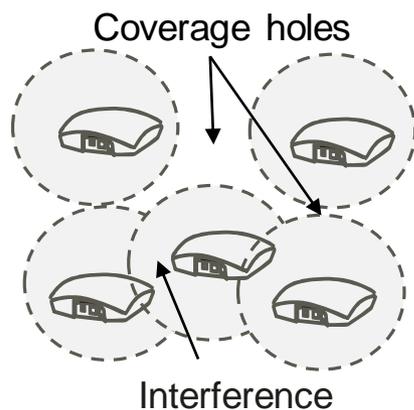


Cloud

**70%** of enterprises IT still in traditional mode

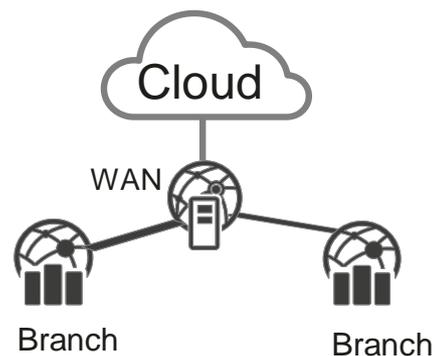
# Four Challenges Faced by Enterprise Digital Transformation

## Discontinuous Wi-Fi networking



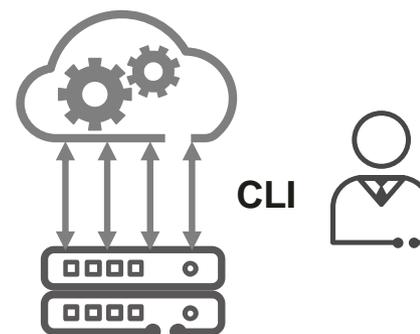
Wireless network breakpoints  
Service discontinuity.

## Cross domain fragile infrastructure



Independent deployment  
& management  
None-unified policies

## Cloud Outpacing Network



Manual deployment  
Lack of automation

## Trouble ticket-driven operation



Engineer

Invisible wireless network  
Unassured SLAs

# Four Unique Features of Campus Network in the Cloud Era



## Fully Wireless Access

- Unified WLAN network
- Wi-Fi & IoT convergence



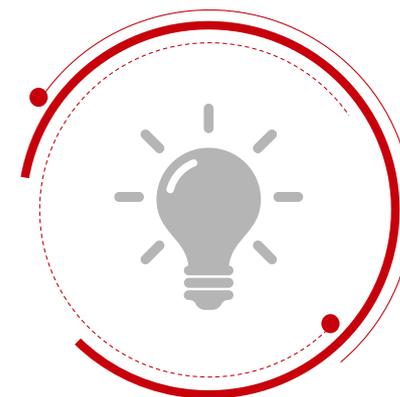
## One Global Network

- One network for multiple services across HQ to multiple branches
- Network-wide SRv6



## Cloud-managed

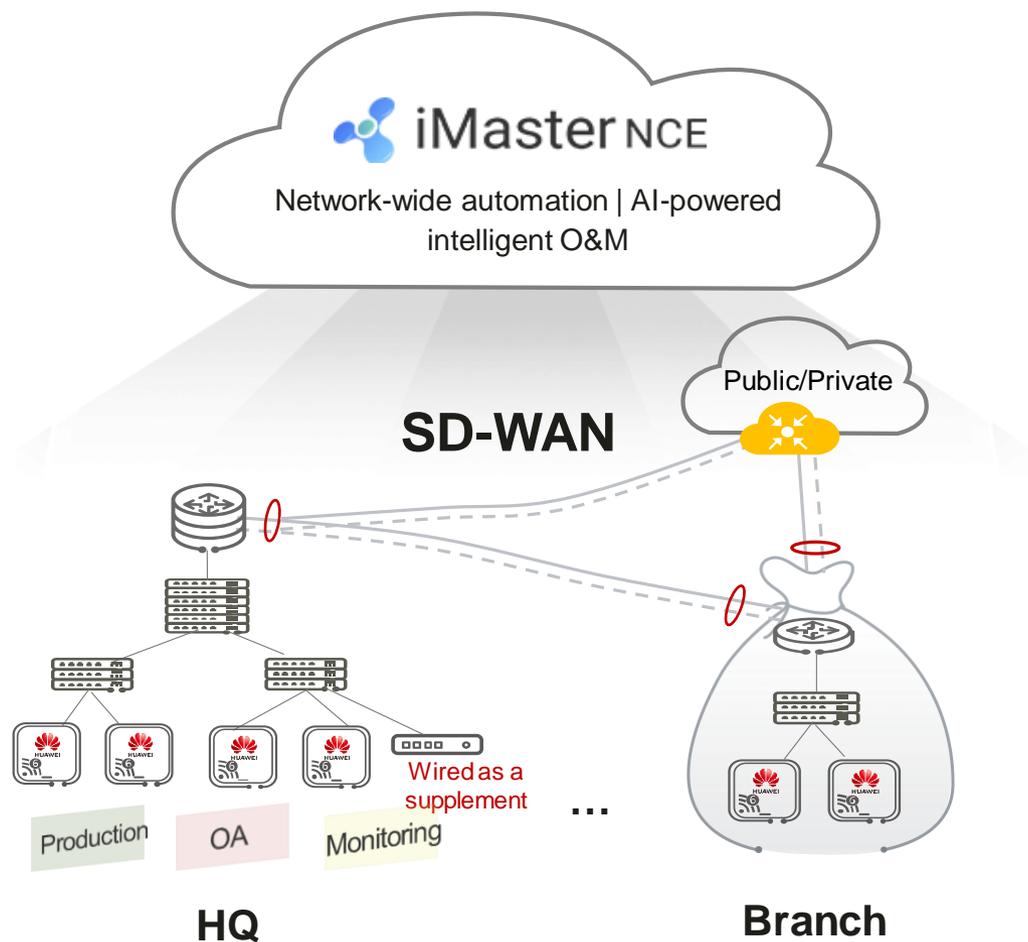
- Cloud-network integration, cloud-driven network automation
- End-to-end SDN across LAN, WAN & WLAN



## Intelligent O&M

- Network visibility and predictive maintenance
- Proactive optimization on user and application experience

# CloudCampus 3.0: Building a Fully-Wireless, Intelligent Cloud Campus Network



## Intelligent O&M

- Visualized user experience
- Intelligent O&M, Locating faults in minutes

**90%**  
**Fewer complaints**

## Cloud management

- One platform across WAN, LAN and WLAN
- End-to-end SDN automation

**50%**  
**OpEx savings**

## One global network

- SD-WAN intelligent traffic steering
- SRv6 enable one hop to cloud

**40%**  
**Internet cost savings**

## Fully wireless networking

- AirEngine 8760 16T16R high performance
- PCC hybrid copper-fiber cables deliver ultra-large bandwidth

**40%**  
**Higher productivity**

# Wi-Fi 6 Wireless Network Replace Wired Network , Enabling More Innovative Applications



## 4K Conference

70Mbps bandwidth, Latency<100ms



## Immersive Education

AR/VR, Latency < 10 ms



## Factory Automation

AGV roaming: 0 packet loss, Latency< 10ms

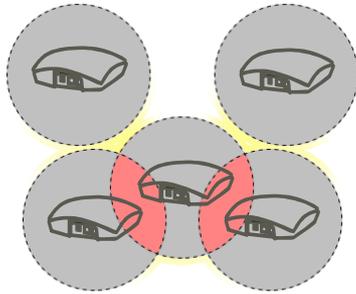
Extending from office to production, enabling more innovative applications

Scenario	Application	Bandwidth	Latency	Num. of Terminal
Office Application	4K conference	70Mbps	100ms	10~30
	Immersive education	100Mbps	10~20ms	30~50
Production Application	AGV	512kbps	10ms	500~1000
	Auto process -monitoring	10Mbps	4~10ms	20~50

Scenario	Application	Wired	Wi-Fi 5	Industry Wi-Fi 6	Huawei Wi-Fi 6
Office Application	4K conference	✓	✓	✓	✓
	Immersive education	✗	✗	✓	✓
Production Application	AGV	✗	✗	✓	✓
	Auto process -monitoring	✓	✗	✗	✓

# Huawei Wi-Fi 6: Continuous WLAN Coverage and Networking

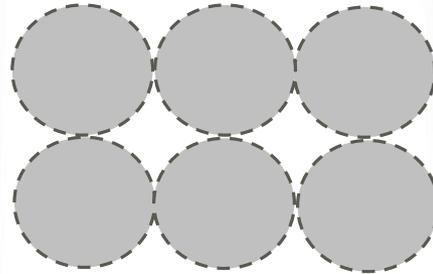
## Discontinuous coverage of traditional Wi-Fi



### Challenges to traditional WLAN networking

- Coverage holes
- Vulnerable to co-channel interference
- Prone to in-roaming interruption

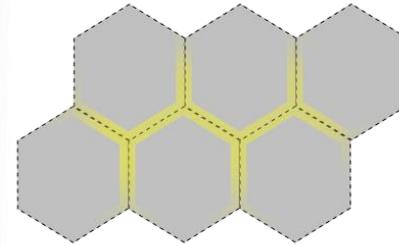
## No blind spots



### Exclusive 3D network planning

- 30-minute planning for a campus with 10K users
- 3D signal simulation, intuitively displaying the roaming path

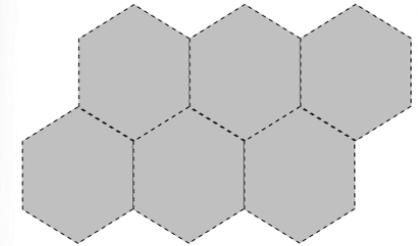
## No coverage holes



### Industry's unique 4-element smart antennas

- Always-on signals for user
- 20% longer coverage range

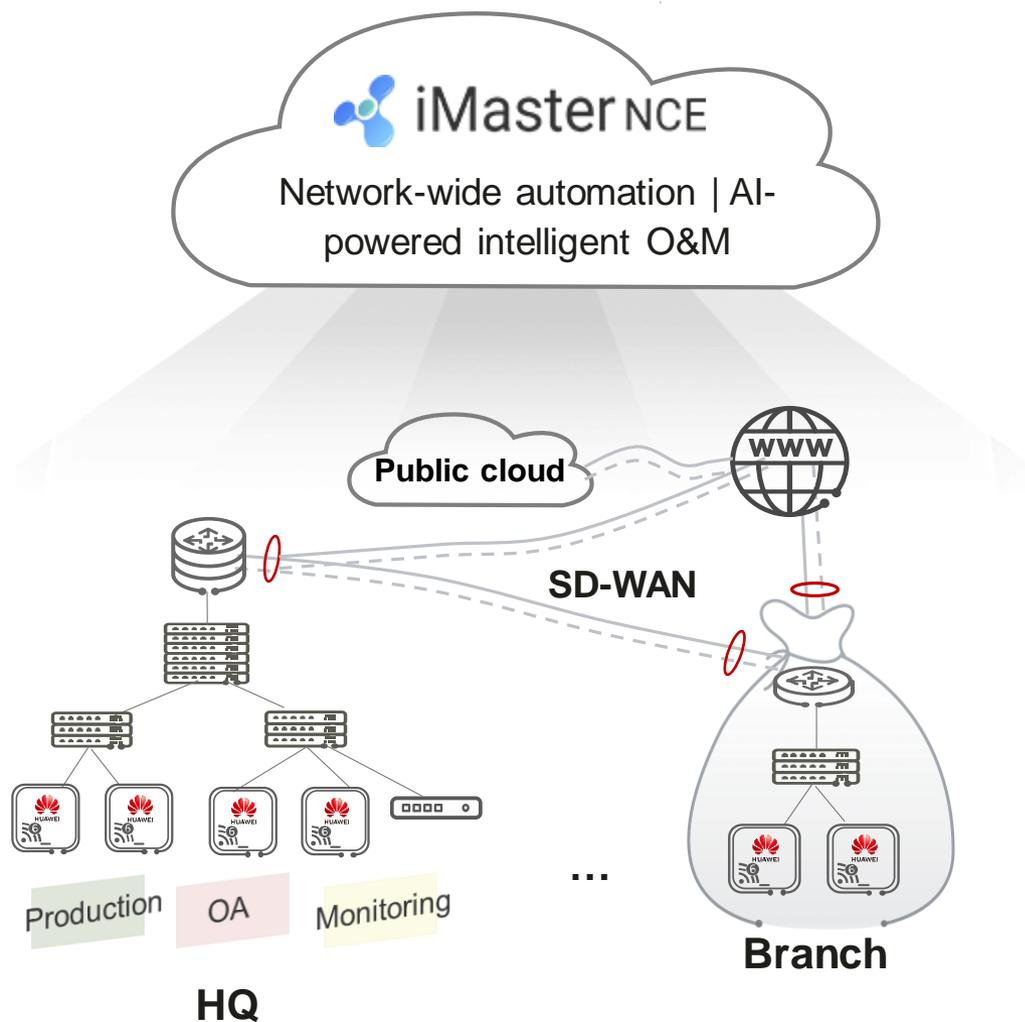
## Interruption-free roaming



### Exclusive AI-powered roaming technology

- Proactive roaming steering
- 96% roaming success rate

# One Global Network: SDN for Global Enterprise Interconnection and Cloud-Network Synergy



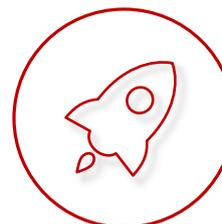
## Model-based automation, **Self-driven network**

- VPC-like models & dynamic pre-configuration
- Automatic configuration of virtual networks



## Network validation, **Error-free**

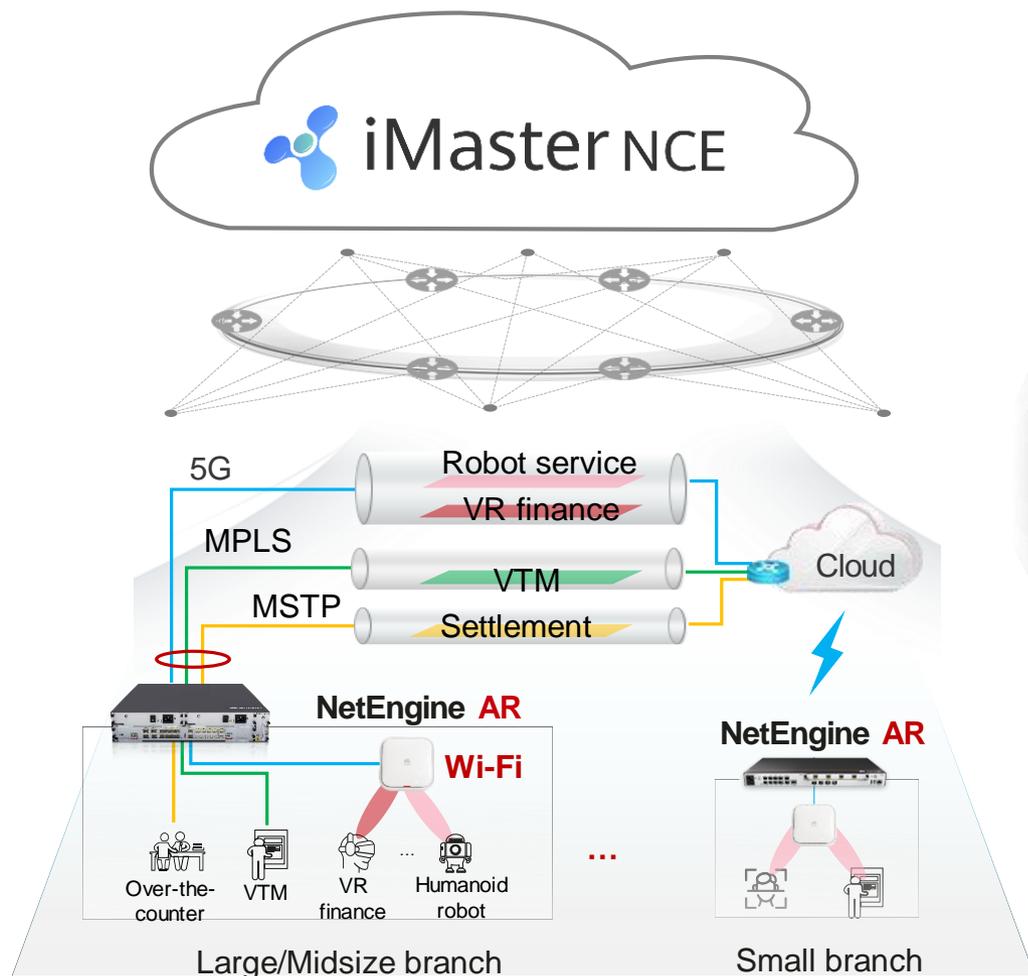
- Minute-level network topology simulation
- Exclusive multi-layer simulation algorithm



## One click deployment, **Hands-free**

- One-click service configuration
- Full-lifecycle management

# Huawei SD-WAN: Fully Connecting Multiple Branches & Centrally Managing Network Services



## Flexible networking, On-demand interconnection

- 5G gigabit wireless, enabling fast deployment
- AR1000V-enabled one hop to five public clouds, achieving multicloud interconnection

## Intelligent traffic steering, Assured experience

- Unique SD-WAN+SRv6, one network across campus and WAN, guaranteeing SLAs
- Multi-fed and selective receiving, high-performance redundancy algorithm, achieving 0-ms switchover for key services

## Intelligent operation and management, Improved efficiency

- Intelligent policy recommendation: policy provisioning with just three steps, proactive prediction
- 50+ reports: multi-dimensional visibility into the network-wide status, fast fault locating

# Cutting-Edge 5G SD-WAN Technology: Unique SRv6 Networking, Dual-Fed and Selective Receiving on the Overlay

## Industry-unique "SRv6+SD-WAN" solution

**10 ms deterministic latency**



- "AR + NE router" networking: **one network across campus and WAN**
- Intelligent application identification: **SRv6-powered full-path intelligent navigation**
- IPv6: **ideal for next-generation carrier networks**

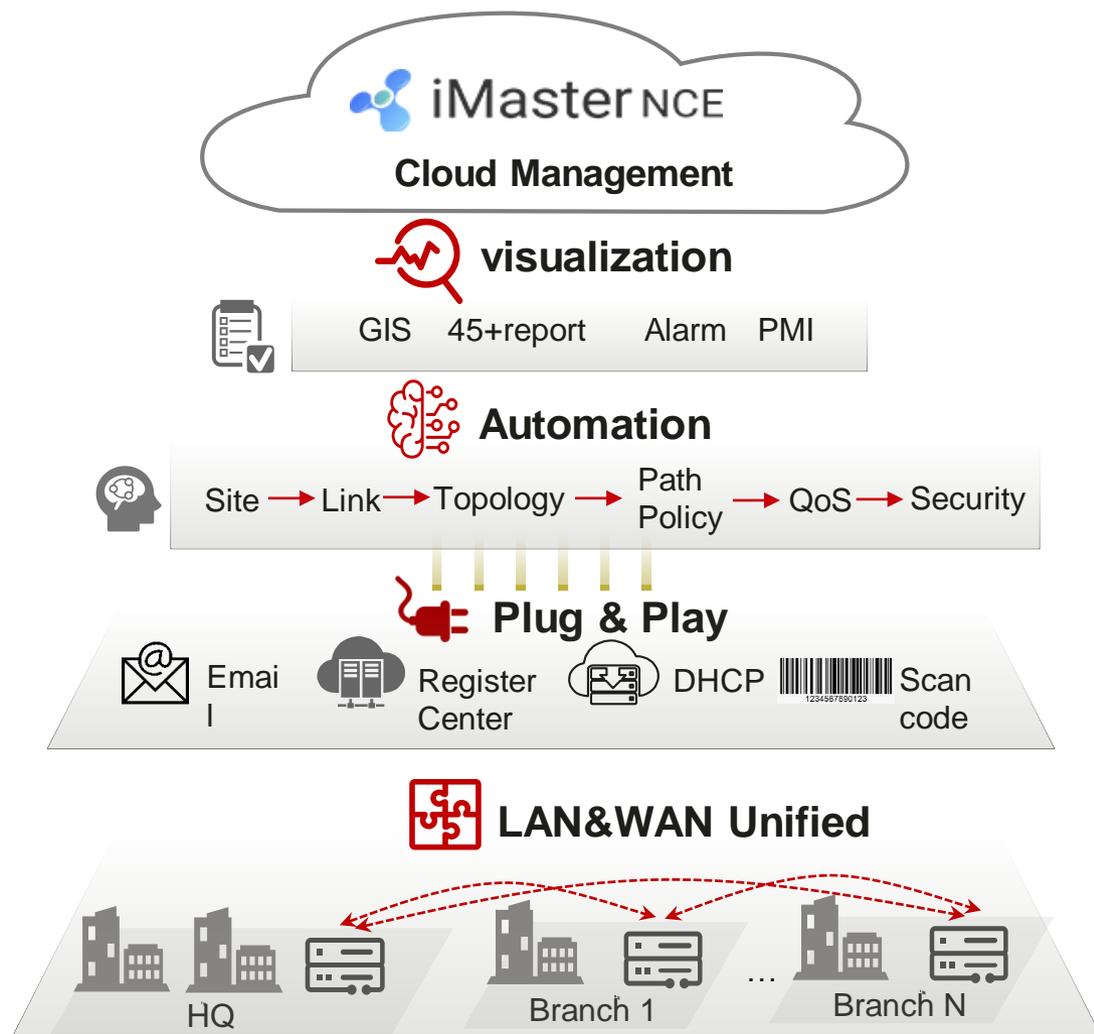
## Dual-fed and selective receiving on the overlay

**0 ms switchover for key services**



- 1+1+1 link backup, **100% transmission reliability of key services**
- 3 unique redundancy modes, **auto-adapting to packet loss, jitter, and latency**
- Multiple tunnel types, ideal for **L2 and L3 private lines**

# Cloud Management: Automatic Deployment Across LAN and WAN, Simplifying Network Management and Operations



## Cloud-based **Service Previsioning**

- Network monitoring based on GIS map
- Application / link / site / whole network status visible

## Cloud-based **Network Operation**

- Automatic configuration of site and network topology
- Automatic configuration of routing, QoS and security policy

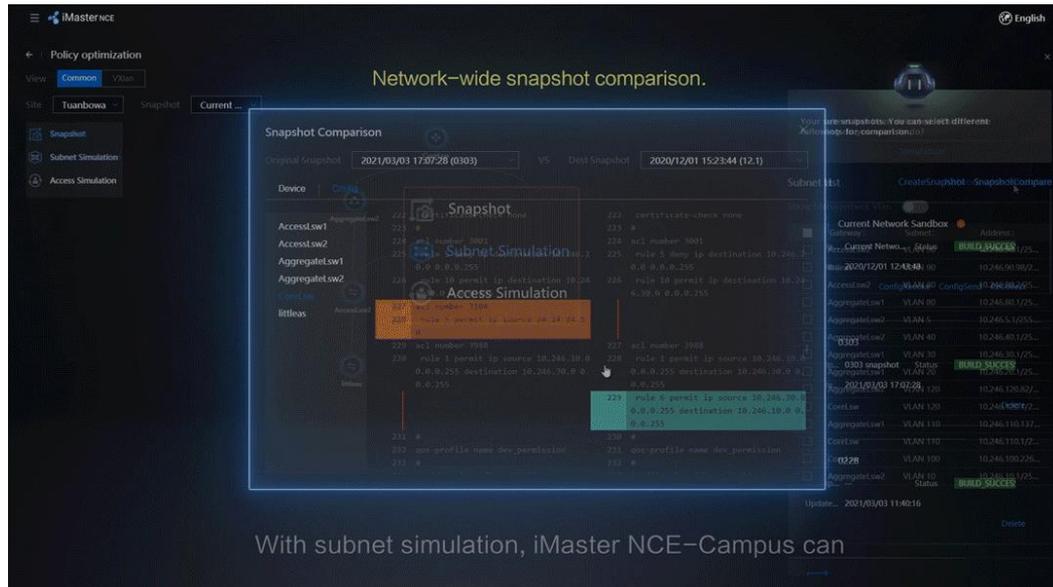
## Cloud-based **Unified Managed**

- Unified configuration management of LAN & Wan devices
- LAN & Wan policy unified configuration management



# Intelligent Verification: Zero-Error SDN Configuration, Worry-free Deployment

## Industry-unique data plane verification (DPV)



## Network-wide snapshot comparison

Network-wide backup and fast inconsistency discovery, facilitating fault locating

## Subnet verification

Real-time intelligent verification of network connectivity and multipath tracing, quickly identifying faulty NEs

## Terminal access simulation

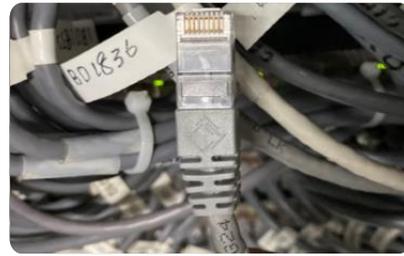
Real-time simulation and verification of terminal access permissions, building secure and trustworthy networks

# AI-Powered Intelligent O&M for Campus Networks

## As-Is



- Numerous wireless users
- Complex wireless scenarios



- Numerous switching ports
- Complex networks

Passive response

**4 hours**

Fault rectification

**162 Mbps**

Average bandwidth

Post-event troubleshooting

**> 4 hours**

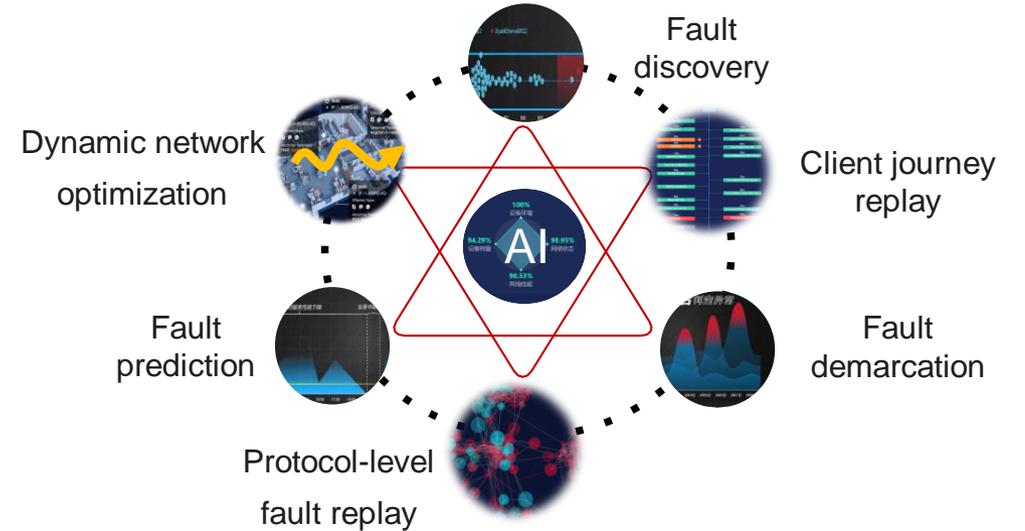
Post-event troubleshooting

**1650+**

Network faults



## To-Be



Proactive fault detection

**10 minutes**

Fault rectification

**58%**

Network-wide performance increased

Pre-event health check

**10 minutes**

Pre-event prevention

**85%**

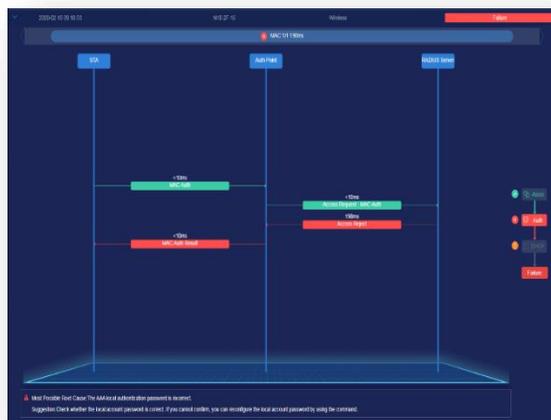
Potential faults reduced

# Improving User and Application Experience with CampusInsight



## Real-time Experience Visibility

- Exclusive multi-dimensional experience evaluation system
- Network-wide experience visibility



## Minutes Fault Locating

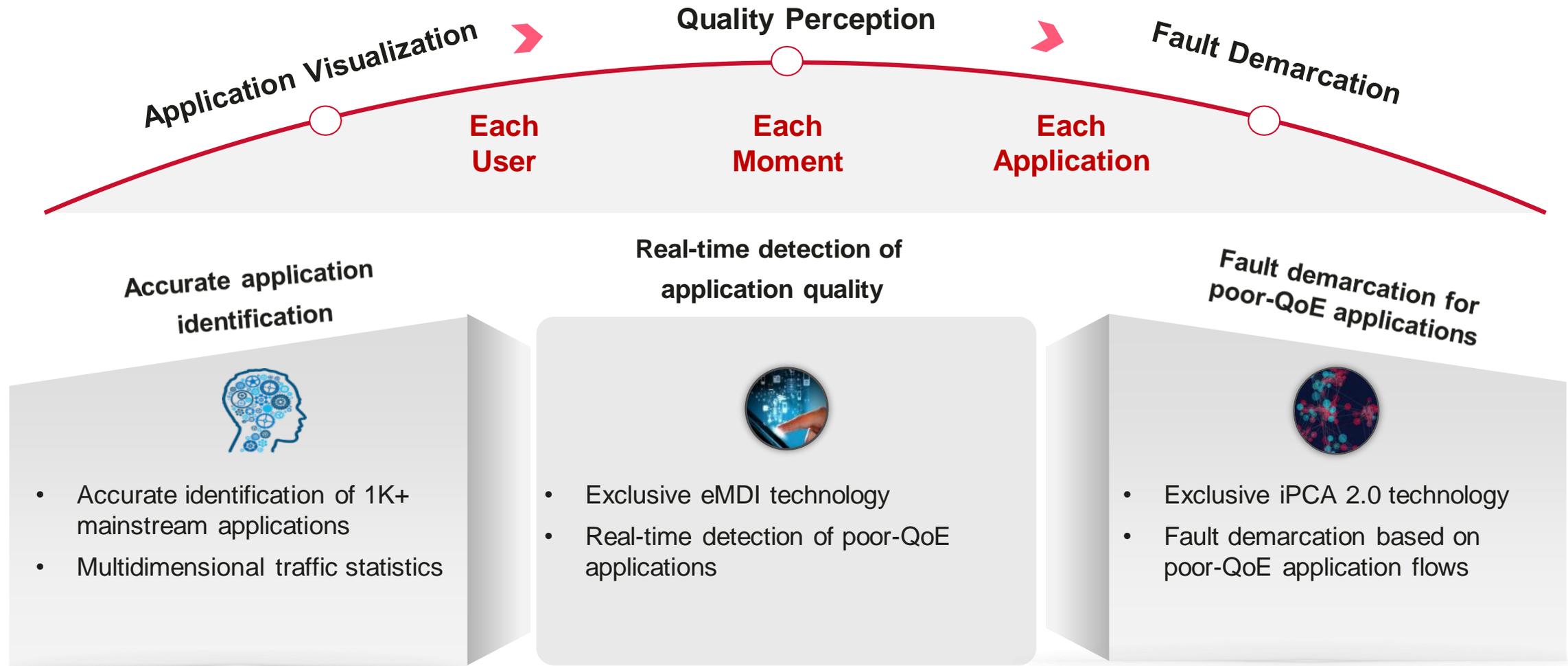
- Exclusive protocol playback and fault demarcation within minutes



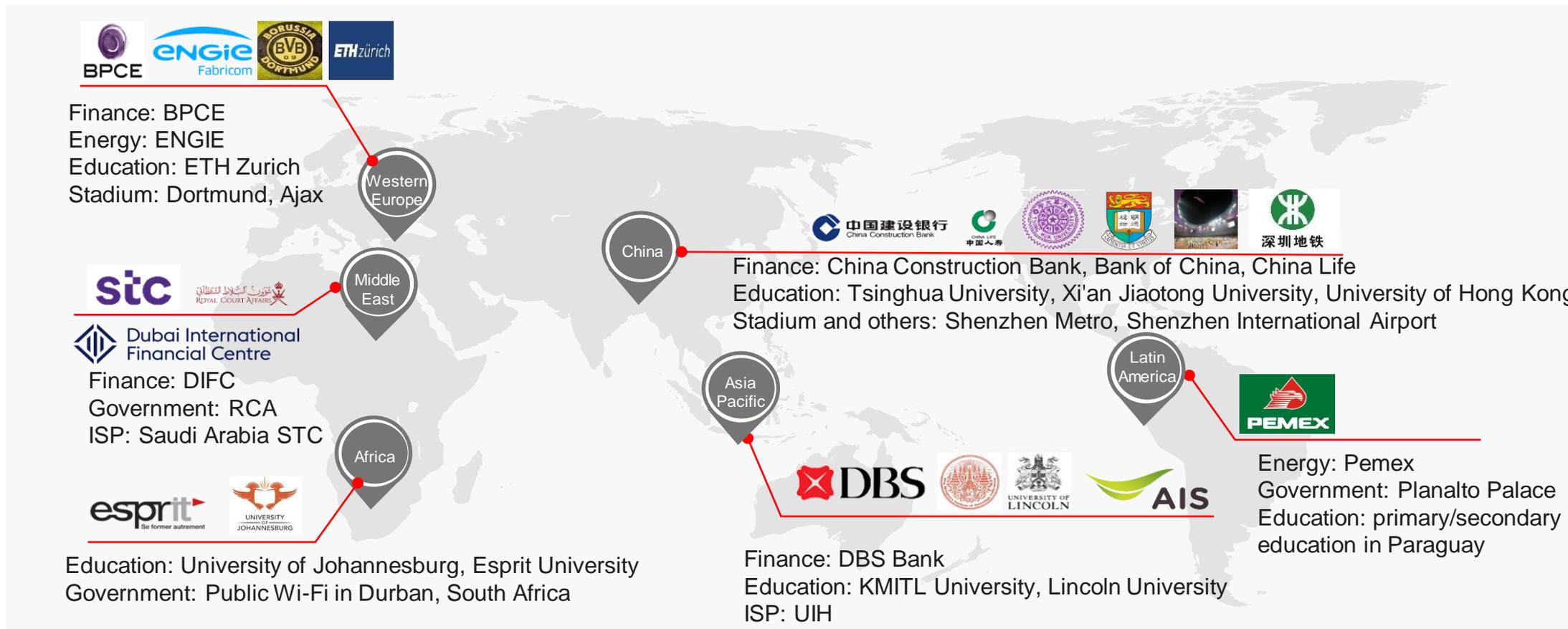
## Intelligent Radio Calibration

- Increased 50%+ network performance

# Strong Visibility, Valuable Insights, Pervasive Intelligence, and Fast Response



# Huawei CloudCampus 3.0 Solution Wins Global Recognition Across Industries



**200,000** devices support  
AI-powered O&M

**300,000** cloud-  
managed devices

**660,000**  
Wi-Fi 6 APs

**1000+** iMaster  
NCE sets

# Four Reasons for Choosing Huawei CloudCampus 3.0

1

The most extensive range of Wi-Fi 6 products, leader in market shares, and No. 1 contributor to Wi-Fi 6 standards.



2

Leader in the global optical communication market, No. 2 in the global switch market for 5 years running.



3

NetEngine series routers wins No. 1 market share globally in 2020.



4

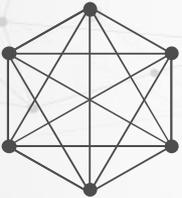
Intelligent O&M proven in a global campus with 190,000+ users: 1500+ iMaster NCE sets deployed globally.



# CloudCampus 3.0

## Building a Fully-Wireless, Intelligent Campus Network

Fully Wireless Networking



Inspire Innovation

One Global Network



One Access to Cloud

Cloud Management



Agile Services

Intelligent O&M



Reliable Digital Services

# Thank you.

把数字世界带入每个人、每个家庭、  
每个组织，构建万物互联的智能世界。

Bring digital to every person, home and  
organization for a fully connected,  
intelligent world.

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